SAFETY DATA SHEET

SODIUM HYDROXIDE / CAUSTIC SODA LYE 37 – 42% **SDS 053/R08**

012-05-2025

Reg. No. 2003/017152/07

Safety Data Sheet (SDS) According to ISO / SANS 11014:2009/10, UN Transport of Dangerous Goods, UN Globally Harmonized System of Classification & Labelling and EC Directive 1272/2008

SECTION 1. Identification – Chemical Product and Company

Trade Name	:	Caustic Soda Lye Solution
Chemical Name / Proper Shipping Name:	:	SODIUM HYDROXIDE
UN Number	:	1824
CAS Number	:	1310-73-2
GHS Product Identifier	:	Sodium Hydroxide Solution
EC Number	:	215-185-5
IUPAC Name	:	Sodium Hydroxide
Other means of identification	:	Clear, colourless, slightly turbid and viscous solution.
Recommended use of the chemical	:	Acid neutralisation, manufacture of sodium salts, manufacture of plastics, soaps and detergents, Rayon, pulp and paper industry, dyes and pharmaceutical industries, aluminium processing, petroleum refining and rubber reclamation,
Restrictions on use	:	Not for retail or domestic use, nor use by untrained persons
Supplier's details	:	NCP Chlorchem (Pty) Ltd
Address	:	Cnr. Ossewa and Norwalk Street, Chloorkop, Gauteng, South Africa:
Telephone No.	:	+27 (0) 11 976 3111
24hour Emergency phone number	:	+27 (0) 11 976 2115/3333

SECTION 2. Hazards Identification

Hazard Class and Category	GHS Hazard Statement
Metal Corrosion: Category 1	H290: May be corrosive to metals
Skin Corrosion /Irritation: Category 1	H314: Causes severe skin burns and eye damage
Serious Eye Damage/Irritation: Category 1	H318: Causes serious eye damage
Aquatic Hazard: Chronic Category 3	H412: Harmful to aquatic life with long lasting effects

The most important adverse effects to know in an emergency are - causes severe skin burns, serious eye damage and may be corrosive to metals.

GHS label elements:

Corrosive

Signal word: Danger

Hazard Statements – Causes severe skin burns and serious eye damage. May be corrosive to metals and is harmful to aquatic life.

Precautionary statements:
P260: Do not breathe mist/spray.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P317: If eye irritation persists get medical assistance.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310: Immediately call a doctor/physician.
P307+P311: IF exposed call a or doctor/physician.
P363: Wash contaminated clothing before reuse.

Response:
Refer to Sections 5, 6 and 8

Storage:
Refer to Section 7
Special Labelling requirements – refer to Section 14 for transport labels

Main hazards
Causes severe skin burns and causes serious eye damage, harmful to aquatic life and may be corrosive to metals.

SECTION 3. Composition / information on ingredients

Chemical identity	:	Substance
Other means of identity	:	Clear, slightly turbid, slightly viscous, colourless solution
Common name, synonyms, etc.	:	Caustic soda lye
Impurities (%m/m)	:	≤0.1 NaCl; < 0.4 Na_2CO_3 (Total Impurities <1%)

Hazardous components :

Ingredient name	UN Number	CAS number	%m/m NaOH	EC List number
Sodium Hydroxide	1824	1310-73-2	37 - 42	215-185-5

SECTION 4. First Aid Measures

General Measures
Check the vital functions. If unconscious: maintain adequate airway and respiration. Observe the victim and keep the calm, avoid physical strain, get medical assistance as soon as possible. Never give anything by mouth to an unconscious person.

Product in eye
Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 30 minutes whilst holding the eyelid(s) open. Remove contact lenses if present and safe to do so, take care not to rinse contaminated water into the non-affected eye. If irritation persists repeat flushing and obtain medical attention.

Product on skin
Place victim under safety shower as quickly as possible and/or wash with running water to remove all visible traces of chemical, and remove contaminated clothing, shoes and leather goods while continuing to wash away all the chemical. If irritation persists, get urgent medical attention.
Completely decontaminate clothing, shoes and leather goods before re-use or discard.

Product ingested
Never give anything by mouth if victim is losing consciousness, or is unconscious or convulsing. Rinse mouth thoroughly with water. Do not induce vomiting. If victim can swallow, give him/her ±300ml of water to drink to dilute the material in stomach. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water and obtain medical attention immediately.

Product inhaled – for mists or spray
Remove victim from the area of exposure into fresh air. Give artificial respiration if victim is not breathing, with the aid of a mask equipped with a one-way valve or other proper respiratory medical device, do NOT use mouth-to-mouth method if victim ingested or inhaled the substance. If conscious place the victim in a semi-upright position and give oxygen if available and breathing difficulty is experienced. Obtain medical attention immediately**.**

SECTION 5. Fire Fighting Measures

This material is NOT Flammable - Suitable extinguishing media if involved in a fire

Extinguish fire using agent suitable for the type of surrounding fire - water spray, carbon dioxide, dry powder or sand can be used to extinguish fires.

Reactivity: Normally stable, but can become unstable at elevated temperatures and pressures, or may react with water with some release of energy, but not violently

Small Fire:
Immediate response action should be to quickly put out the fire. CO_2, dry chemical and water spray can be used.

Large fires:
Move containers away from fire if can be done safely without increasing risk, if not keep the containers cool with fire hoses to prevent bursting. Isolate and contain fire as much as possible, and dike with inert material to contain run-off water for later disposal. Do not scatter the material. Use water spray, alcohol-resistant foam and dry chemical to put out the fire.

Special hazards:
- Non-combustible, but may decompose upon heating to produce corrosive and/or toxic fumes.
- Containers may explode when heated.
- Reacts violently with strong acids such as HCl, H_2SO_4 and HNO_3, water and moisture to rapidly release heat.
- Reacts with metals like aluminium, lead, tin, zinc and copper to produce hydrogen gas.
- Sodium Hydroxide can also attack iron, copper, plastics, rubbers and coatings. It can also form shock sensitive salts on contact with nitrogen containing compounds e.g. Nitromethane.
- Sodium Hydroxide is not compatible with oxidizing agents such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine, fluorine, chlorinated solvents, ammonia and organic materials.

Protective clothing
- Wear chemical protective clothing and gloves to prevent any possibility of skin contact
- Wear suitable respirator or positive pressure self-contained breathing apparatus, depending on scale of the fire and fumes.
- Wear chemical goggles, safety glasses or face shields as appropriate to the magnitude of the incident.

NB: Prompt actions can stop small fires but large fires involving chemicals require professional Emergency Response Teams

SECTION 6. Accidental Release Measures

Personal precautions

- Stop leak if safe to do so
- Ensure adequate ventilation. Wear suitable respirator or breathing apparatus when entering area unless atmosphere is proved to be safe.
- Wear chemical resistant overalls /apron and protective gloves, to prevent prolonged or repeated skin contact.
- Wash contaminated clothes.
- Keep containers closed and evacuate unnecessary personnel.
- Keep out of low-lying areas to prevent pooling. Ventilate enclosed areas
- Do not touch or handle damaged containers or material unless wearing appropriate protective clothing.

Environmental precautions

- Sodium Hydroxide is dangerous to aquatic life in high concentrations, dyke to contain spills.
- Do not allow spillage to enter sewers or off-site water sources, prevent spillage from running off site.
- Notify authorities if liquid enters sewers, or water sources.

Spillages and Clean-up methods

As an immediate precautionary measure, isolate spill or leak where possible, for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids in all directions.
Keep unauthorized personnel away - evacuate where necessary, and secure and control entrance to the area.

- Absorb sodium hydroxide solution in dry sand, earth, or similar material and place into sealed containers for disposal.
- Collect solid material in the most convenient and safe manner and place into sealed containers for disposal.
- Do not use water to disperse as may react exothermically, only wash down when all possible material has been collected.
- Only wash down area after clean-up is complete.
- Do not wash product into the sewer.

GHS Disposal Precautionary Statement - P501- dispose of product and containers in accordance with SA National and / or regional Regulations
Refer National Environmental Management Waste Act - NEM: WA, it's Regulations and local by-laws. See the South African Waste Information Centre www.sawic.environment.gov.za for information on permitted Waste Facilities and Service providers.

SECTION 7. Handling and Storage

Storage requirements
Store in tightly closed, preferably plastic, drums, jerricans and containers. Store in a cool, dry, well ventilated area away from incompatible substances such as:

- Acids (Hydrochloric, Sulphuric & Nitric acids)
- Metals (Aluminum, lead, tin, & zinc)
- Oxidizing agents (peroxides, perchlorates, permanganates)
- Water (Moisture)

- Nitrogen (nitromethane & nitrates)
- Halogens (chlorine, bromine, fluorine)
- Chlorinates solvents, Ammonia and Organic Materials.

Containers must be kept tightly closed to prevent conversion of NaOH to sodium carbonate by CO_2 in the air.

Handling precautions

- Keep container tightly closed.
- Do not allow water to get into container as this could react violently with rapid evolution of heat.
- Do not get in eyes, skin or onto clothing.
- Wash hands thoroughly after handling - avoid accidental ingestion or inhalation.
- Discard contaminated shoes.
- Keep indoor areas well ventilated.

Conditions for Safe Storage - refer SANS 10263: The Warehousing of dangerous goods, and **10263 - Part 8** the storage and handling of corrosive substances, for more specific information and relevant regulations, and recognised practices for storage, warehousing and handling.

GHS Precautionary Statement P405: Store locked up. Keep the container tightly closed.

Suitable containment / packaging materials
Mild steel, nickel, polyethylene, polypropylene, glass, fiberglass

Unsuitable materials
Zinc, lead, copper, aluminum, iron and alloys

SECTION 8. Exposure Controls/Personal Protection

Control parameters e.g. occupational exposure limit values or biological limit values:

Ingredient name	Exposure limits	
Sodium Hydroxide	2.0 mg/m^3	Short Term OEL-RL mg/m^3 - SA HCA Regulations
		TWA – OSHA PEL (mg/m^3)
		NIOSH REL (ceiling) (mg/m^3)
	10.0 mg/m^3	NIOSH IDLH (mg/m^3)

Occupational exposure standards
American Conference of Governmental Industrial Hygienists (ACGIH): TLV (Ceiling) = 2mg/m^3

Engineering control measures: Emergency eyewash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour and mists below the exposure limits.

Respiratory protection: In case of dust formation -

- wear micro dust mask. Use respiratory equipment with suitable filter or wear self-contained respiratory apparatus. Guidelines provided by NIOSH are:
- Exposure up to 10 mg/m^3:
  - (APF = 25) Any supplied-air respirator operated in a continuous-flow mode; OR any powered air-purifying respirator with a high-efficiency particulate filter.
  - (APF = 50) Any air-purifying, full-face piece respirator with an N100, R100, or P100 filter; OR any self-contained breathing apparatus with a full-face piece; OR Any supplied-air respirator with a full-face piece. (APF = Assigned Protection Factor)

Hand protection: Wear protective gloves. Select glove material impermeable and resistant to sodium hydroxide. Selection should be made on basis of diffusion and degradation rates of the glove material. Gloves

composed of natural rubber, neoprene, nitrile, or polyvinyl chloride (PVC) having break through times greater than one hour are recommended.

Eye and face protection:

- Wear chemical safety goggles with side protection shield, or goggles
- Full face mask.

Skin and body protection:

- Acid-proof protective overall, safety shoes or boots.
- Chemical protective clothing composed of natural rubber, neoprene, nitrile, or polyvinyl chloride (PVC) are recommended.

General protective and hygiene measures:

- Use appropriate PPE as appropriate to the job function,
- Avoid contact with skin and eyes.
- Do not inhale spray or aerosol mist.
- Wash hands immediately after handling chemicals and before breaks.
- Do not eat, drink and smoke in the workplace.
- Remove contaminated clothing immediately.

SECTION 9. Physical and Chemical Properties

Appearance	Colourless or slightly turbid, viscous liquid
Odour	Odourless
pH	>11
Density	1.50 – 1.52 g/ml at 250°C
Boiling point/range	145°C (50% Solution) @ 100kPa
Freezing/Crystallisation range	12 °C (50% Solution) @ 100 kPa
Flash point	Non-combustible
Flammability	Not flammable
Explosive properties	Not applicable
Oxidizing properties	Not applicable
Vapour pressure	-120 Pa @ 20°C (50% Solution)
Viscosity	-100 Pas @ 20°C (50% Solution)
Solubility - water	Highly soluble at temperatures above 20°C
Auto ignition temp.	Not applicable
Decomposition temp.	Not applicable, stable under normal conditions of use

SECTION 10. Stability and Reactivity

Reactivity:

- Violent exothermic reaction with water (moisture)
- On heating releases corrosive gases/vapours.
- Absorbs atmospheric CO_2 to form Sodium carbonate.
- Violent exothermic reaction with (some) acids.
- May be corrosive to metals.
- Reacts with (some) metals to release highly flammable gases/vapours (hydrogen).

Chemical Stability:

Sodium hydroxide is stable in closed containers, at room temperature and under normal storage and handling conditions. See section 7

Conditions to avoid:

- Incompatible materials such as strong acids, moisture, metals, Nitrogen compounds, halogens, and oxidising agents.

- Exposure to direct sunlight and prolonged exposure to air.
- Extremely high or low temperatures.

Incompatible materials:

- Strong acids (HCL, H_2SO_4, and HNO_3), water and moisture rapidly release heat.
- Metals (Aluminum, lead, tin, zinc) forms flammable and explosive hydrogen gas.
  Sodium hydroxide is not compatible with oxidizing agents such as peroxides, perchlorates, permanganates, chlorates, nitrates, chlorine, bromine, fluorine, ammonia and organic materials.

Hazardous decomposition products:

- Reaction with acids causes evolution of toxic gases - sodium oxide.
- Thermal decomposition generates corrosive vapours.
- Hazardous polymerization does not occur.

SECTION 11. Toxicological Information

Sodium hydroxide is irritating and corrosive to all tissues. Direct contact causes burns, deep ulceration, and can destroy tissue. Inhalation of dust may seriously affect lungs. Ingestion causes severe tissue damage.

Acute toxicity	Result	Species	Dose/ Exposure	Caution
Dermal	Severe ulceration and scarring, skin corrosion and irritation, eye watering.	Humans Pigs	0.5 - 4% 8% - 16%	Prevent exposure to skin by wearing appropriate PPE
Eye	Extremely corrosive and severe scarring. Can also cause blindness.	Rabbits	2% at pH = 12	Prevent eye exposure by wearing correct eye protection.
Ingestion	Severe mouth burns and if swallowed, extensive damage to esophagus, and may lead to vomiting, prostration, collapse and constructive scarring.	Humans	50 - 200ml of 25- 37%	Do not shallow or inhale.
Inhalation	May cause irritation of mucous membranes with subsequent cough and dyspnea; and intense exposure may result in pulmonary edema and shock	Humans	2 to 8 mg/m^3 – irritation	Avoid inhalation and use appropriate engineering or PPE controls

GHS – EU Group Classification, and C & L Inventory:

- **Acute toxicity:** Not Classified
- **Skin Corrosion/Irritation**: Skin Corrosion, Category 1A - Causes severe skin burns
- **Eye Damage:** Category 1 - Can cause serious eye damage
- **Respiratory, Category:** Not classified.
- **Germ Cell Mutagenicity:** Not known as a mutagen
- **Corrosion:** Maybe corrosive to metals
- **Carcinogenicity**: Not considered to be carcinogenic by IARC, DSS, and OSHA
- **Reproductive Toxicity:** Not Considered to have any reproductive effects
- **Aspiration Hazard:** Causes damage to respiratory system

SECTION 12. Ecological Information

GHS – EU Group Classification, and C & L Inventory:

Hazardous to the Aquatic Environment: Aquatic Acute Category 3: H402 Harmful to aquatic life

This product is hazardous for the environment, very toxic to aquatic life.

Component	Fish	Water Flea	Invertebrates
Sodium hydroxide	LC 50 = 160ug/l (goldfish) (24hours)	LC50 40 mg/l (48hours)	Lethal Dosage = 150mg/l (vector snails)

Biodegradability: Biodegradation studies are not relevant for sodium hydroxide as it is an inorganic compound.

Bio-accumulation: No bioaccumulation studies have been performed but based on the environmental fate and behaviour of the substance, bioaccumulation in the aquatic ecosystem is not expected.

Mobility: No data available but the product is water soluble, and may spread in water systems. It will likely be mobile in the environment due to its water solubility and it is highly mobile in soils.

Hazardous to the Ozone layer: No evidence - not classified

SECTION 13. Disposal Considerations

Disposal methods
Highly corrosive material - disposal must be done in accordance with the applicable National and Regional Government regulations at approved and permitted chemical disposal sites – refer to the SA National Environmental Management Waste Act - NEM: WA, it's regulations and local by-laws. See the SA Waste Information Centre sawic.environment.gov.za which informs permitted waste facilities and service providers

Disposal of packaging
Packaging and containers, even those that have been emptied, will retain product residue and vapours, handle empty containers as if they were full. Remove all possible traces of product and wash prior to disposal of packaging and containers. Dispose in compliance with regulations – see above and Industry Best Practice
Always observe and comply with hazard warnings.

SECTION 14. Transport information

	UNTDG - Road & Rail	IMDG - Maritime	IATA – Air
UN Number	UN 1824	UN 1824	UN 1824
UN proper shipping name – PSN	SODIUM HYDROXIDE	SODIUM HYDROXIDE	SODIUM HYDROXIDE
Transport Class 8 and hazard - Corrosive			
Packing group - 11	Use UN Certified packaging P001, IBC02/03	Use UN Certified packaging P001, IBC03	Use UN Certified packaging P001
Environmental hazards	Toxic to aquatic organisms/marine pollutant	IMDG Supplement: EmS: F-A & S-B	Refer ICAO & IATA 61st Edition
Additional information			
Emergency Response Guide - ERG 2024	Guide 154 Toxic and/or corrosive/non-combustible and water sensitive	Refer IMDG Amendt. 42 – 24 Supplement & MARPOL	Refer ICAO & IATA 66th Edition 2025

SECTION 15. Regulatory information

OHS Act - Occupational Health and Safety Act 85 of 1993: requires site Risk Assessment and monitoring to inform personnel health / biological monitoring. The **HCA Regulations** require to provide GHS compliant SDS.

MHI – Major Hazards Installations Regulations - OHS Act: require site risk assessment to ascertain potential impacts outside of the site and potential impacts on the public or neighbours. Copy to be lodged with the Dept Labour, and local emergency services.

NEMA – National Environmental Management Act 107 of 1998: Duty of Care and Producer Responsibility for products and packaging on a life cycle basis. Environmental Impact Assessment Regulations for new installations or proposed increase in capacity over 25%
NEM: WA – National Environmental Waste Act 59 of 2008: Extended Producer Responsibility - requirements and regulations for waste management, classification and disposal
National Department of Health – Hazardous Substances Act
EU Directive EC 1272/2008 (EU GHS /CLP) – Safety Data Sheets and labelling
ECHA – European Chemical Agency Website, chemical information, C&L inventory, substances of very high concern (SVHCs) and Chemicals for Community Rolling Action Plan (CoRAP)
ERG 2024 Transport Canada and US Dept Transportation PHMSA - Pipeline and Hazardous Materials Safety Administration

SECTION 16. Other information: This product shall only be handled or used by trained persons.

ISO 11014:2009 Safety Data Sheets for Chemical Products – content and order of sections adopted as SANS 11014:2010, the SA **HCA Regulations and the UN GHS**
UN Recommendations for Transport of Dangerous Goods Model Regulations commonly known as **the "Orange Books"** latest revision, currently 23rd in effect, published June 2023
UN Globally Harmonized System of Classification and Labelling of Chemicals – GHS commonly known as **the "Purple Book"** latest revision effect, currently the 10th, published July 2023
IMDG – International Maritime Dangerous Goods Code, 2024 edition, amendment 42-24
IATA Technical Regulations 66th edition, January 2025

SANS 50896:2020: Chemicals used for treatment of water intended for human Consumption

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EXCLUSION OF LIABILITY

All information provided in this Safety Data Sheet (SDS) is based on best available Technical information at the date of this revision. It is presented in good faith to be correct at the time of compilation.

It is the legal responsibility of the recipient to communicate the hazards stated in this SDS to any person/s who are likely to handle, work with, come into contact with or use this product to ensure safe use.

NB The information provided in this SDS applies only to the product as supplied, and not to any formulation or mix. It should be used only as directed, and any formulations or use is at the responsibility of the user of such product to implement Risk Assessments, in order to establish any hazards or risks which may arise out of its use, wherever such user may be situated.

It is the legal responsibility of the person in receipt of this SDS, whether for transport, storage or use that a Risk Assessment and Emergency Plan is done, and to ensure that the information provided is communicated to, and understood by, any person who may come in contact with the product in any place or any manner whatsoever.